

ABSTRACT

An illumination optical device, wherein a micro channel is not generated practically in a diffractive optical element arranged in an optical path of pulse laser light having high energy density.

5 An illumination optical device having a light source (1) for supplying pulse laser light, wherein an irradiated plane (M) is illuminated with light from this light source. The illumination optical device comprises a diffractive optical element (4) arranged in an optical path between a light source and an irradiated plane, through which a light beam having an energy density of 1 mJ/cm²/pulse or more passes. The diffractive optical element is formed by an oxide crystal material such as

10 quartz crystal.

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